PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Giuseppe Calarco et al.
Application No. : 10/685,292
Filed : October 14, 2003
For : USER CONTROLLED DEVICE FOR SENDING CONTROL SIGNALS TO AN ELECTRIC APPLIANCE, IN PARTICULAR USER CONTROLLED POINTING DEVICE SUCH AS MOUSE OR JOYSTICK, WITH 3D-MOTION DETECTION

Examiner : Regina Liang
Art Unit : 2629
Docket No. : 851663.482
Date : April 8, 2009

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT‘S BRIEF

Commissioner for Patents:

This brief is in response to the Notice of Non-Compliant Appeal Brief, mailed March 9, 2009.

The Notice indicates that the previously filed brief was defective in that it did not include a heading in the argument section corresponding to each grounds of rejection to be reviewed. As directed in the Notice, only replacement sections VI and VII are submitted herewith. Pagination begins at page 13, which corresponds to the page on which section VI begins in the prior filed brief. Page 13 also includes claim 64 and a portion of claim 63 from section V, as in the prior filed brief, permitting direct replacement of the previously filed sections VI and VII with the replacement sections presented here.

compare first X and Y output signals from the sensor with second X and Y output signals from the sensor and derive a change of position of the body from the first and second X and Y output signals (**9:11-14**, Step 54, and **10:7-9**, step 66),

determine, from the change of position, a rate of change (**9:11-14**, **10:7-9**),

compare the rate of change of position with a rate of change threshold, and (**9:11-14**, **10:7-9**),

only if the rate of change does not exceed the rate of change threshold, produce a pointer control signal corresponding to a direction of movement of the body (**9:24-10:2**; steps 62, 64, Fig. 11).

64. The device of claim 63 wherein the circuit is configured to compare the amplitude of change with an amplitude threshold and produce the pointer control signal only if the amplitude of change exceeds the amplitude threshold (**9:28-29**).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1, 2, 8, 12-14, 16-18, 20, 22, 30-34 36-39, 41, 54-58, and 63-65 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,573,883 to Bartlett (hereafter *Bartlett*), in view of "Two Dimensional Position Detection System with MEMS Accelerometer for Mouse Applications," by Lee, et al. (hereafter *Lee*, and attached herewith as Appendix IX B).

2. Whether claims 42-45, 48, and 50-52 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,573,883 to Bartlett, in view of U.S. Patent No. 6,765,553 to Odamura (hereafter *Odamura*).

Claims 2-8, 10-12, and 54-56 stand or fall with claim 1. Claim 14 stands or falls with claim 13. Claims 17-18, 20, 22, 57, and 58 stand or fall with claim 16. Claims 31 and 33-35 stand or fall with claim 30. Claim 37 stands or falls with claim 36. Claims 39 and 41 stand or fall with claim 38. Claims 43-45, 48, and 50-53 stand or fall with claim 42. Claims 64 and 65 stand or fall with claim 63.

VII. ARGUMENT

A. Introduction and discussion of the relied-upon references

Each of the claims argued below includes a limitation in which a threshold is recited, i.e., speed of movement threshold (claim 1), rate of change threshold (claim 63), etc. In every case, Examiner Regina Liang (hereafter *Examiner*) relies on the Bartlett reference to provide the appropriate teaching or suggestion. Furthermore, the Examiner does not argue or imply that any of the other art of record teaches these particular limitations. In the interest of brevity, and absent such an assertion by the Examiner, Appellants will not submit detailed arguments demonstrating the deficiencies of the other references with respect to these limitations.

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). Accordingly, if Bartlett fails to teach or suggest any of these limitations, or if one of ordinary skill would not have found them obvious in its light, the respective claims are allowable over the remaining art.

In the arguments that follow, when a specific passage of a U.S. patent is cited, it will be indicated by a column number separated from a line number by a colon.

1. Bartlett Reference

Bartlett is directed to a handheld computing device having sensors configured to sense position and orientation of the device (*Bartlett*, 1:53-62), and a method is provided for inputting data commands. Commands are separated into position commands and gesture commands (*id.*, 3:13). Position commands are correlated to a particular angular orientation of the device at any given instant in time, and are submitted instantaneously simply by virtue of holding the device at an angle (*id.*, 3:24-29, 39-42), while gesture commands require an interval of time for submission, and comprise unique patterns of movement over that interval of time (*id.*, 3:29-34, 42-46).

Position commands can be used, for example, to scroll through menus or data (*id.*, 5:22-47). Increasing or decreasing the angle of the device causes the scrolling rate to increase or decrease, etc. (*id.*, 5:42-47).

Gesture commands, in contrast, are series or patterns of motions performed by a user over an interval of time, during which time the device measures the motions, and, at the end of the interval of time, determines whether a gesture command was executed (*id.*, 3:31-34, 43:47-52). An example of a gesture command is shown graphically in Bartlett's Figure 2a, which is provided below as Figure 4.

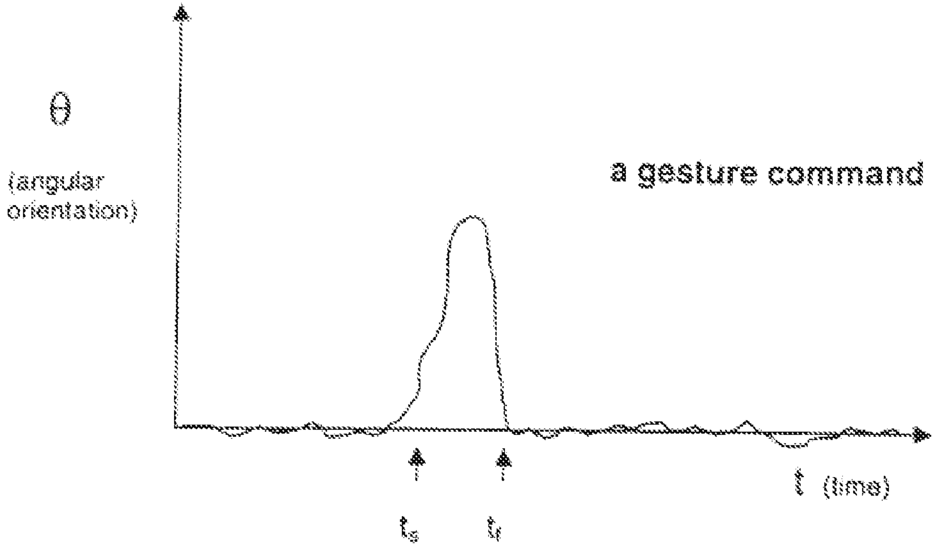

Figure 4
(Figure 2a of Bartlett)

Figure 4 shows "a gesture command that comprises a rotation in a positive angular direction followed immediately by a return approximately to the starting position" (*id.*, 4:18-21). The gesture begins at time t_s and ends a time t_f, at which point the computing device compares the series of motions with a catalog of gestures to determine whether if the series matches a gesture in the catalog (*id.*, 4:53-60), making allowance for minor variations that will be inevitable for movements made by hand (*id.*, 4:60-63, see also flow chart, Bartlett's Fig. 3). If a match is found, the corresponding command is executed.

Bartlett's method cannot identify a gesture command until the end of the time interval, during which a series of motions are executed that are initially interpreted as position commands. This could create potential confusion (*id.*, 6:49-58), so Bartlett provides a procedure for resolving the question, described with reference to the flow chart of Figure 6, which is provided below as Figure 5.

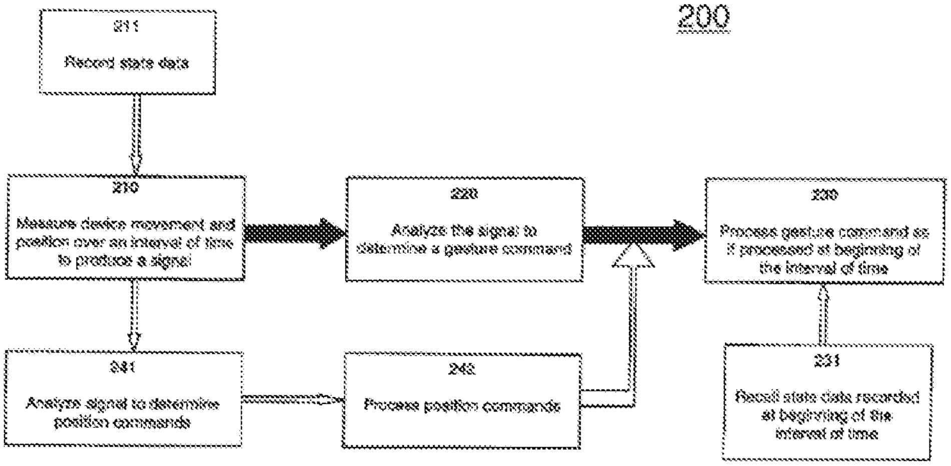
200
211
Record state data
210
Measure device movement and position over an interval of time to produce a signal
220
Analyze the signal to determine a gesture command
230
Process gesture command as if processed at beginning of the interval of time
241
Analyze signal to determine position commands
242
Process position commands
231
Recall state data recorded at beginning of the interval of time

Figure 5
(Figure 6 of Bartlett)

At step 211, the device records the state of the device, *e.g.*, the menu item or icon that is highlighted (*id.*, 7:21-22). The series of motions is measured over the time interval, at step 210 (*id.*, 6:65-67), and compared with the catalog to determine whether a gesture command was entered, at step 220 (*id.*, 6:67-7:2). Meanwhile, the motions are analyzed as position commands and executed, at steps 241, 242 (*id.*, 7:6-14). If a gesture command is detected at step 220, the corresponding action is executed as though it had occurred at time t_s, at step 230 (*id.*, 7:3-5). This is accomplished by retrieving the state of the device, which was previously recorded at time t_s, at step 211 (*id.*, 7:22-27).

In other words, a user can, for example, scroll to a particular menu item using position commands, then, by moving the device in a series of motions, activate the highlighted item using a gesture command. As the user is moving the device in the correct series of movements of the intended gesture command, the device will respond to the motions of the gesture as though they are individual position commands, by scrolling away from the selected item, or whatever other actions are indicated, but, upon determining that a gesture command was executed, the device will return to the point in time where the command began, in order to determine which menu item was highlighted, then respond to the gesture command by activating the menu item (*id.*, 7:28-38).

Appellants wish to call particular attention to a couple of features of Bartlett's method that will have particular relevance to the arguments that follow. First, all motions, regardless of whether they are intended as a position command or as part of a gesture command, will be executed as a position command; in the case where a gesture command is later detected, the erroneously executed position commands are reversed, but that is not the same as not having executed them in the first place. Second, Bartlett places no restrictions on its motion or gesture commands with regard to speed of movement. Certainly, individual gesture commands would require that the user perform the gesture at about the same speed as was originally programmed, but there is no suggestion that all commands must be executed at a same rate, so one of ordinary skill would understand that each gesture could be programmed for a different speed.

2. Lee and Odamura References

The Examiner relies on Bartlett to teach or suggest all of the limitations of each of the claims argued below except that, where a claim recites a MEMS device (claims 1, 16, 30, and 36), the Examiner points to Lee as teaching such a device (see page 2 of the Final Office Action, mailed May 6, 2008, hereafter *Office Action*, and attached herewith as Appendix IX C), and where claim 42 recites a circuit configured to produce a cursor movement, the Examiner points to Odamura as teaching that element (*Office Action*, page 9). Appellants stipulate that Lee teaches a MEMS accelerometer device, and that Odamura teaches a device that produces a cursor movement in response to tilting of the device.

With regard to each of claims 1, 13, 16, 30, 32, 36, 38, 42, and 63, it is demonstrated below that Bartlett fails to teach or suggest at least one limitation that is argued by the Examiner as being obvious over Bartlett. In no case does the Examiner argue that the respective limitations are also taught or suggested by Lee or Odamura, nor do Appellants believe such to be the case.

B. ***Rejection of claims 1, 2, 8, 12-14, 16-18, 20, 22, 30-34 36-39, 41, 54-58, and 63-65under 35 USC §103(a) over U.S. Patent No. 6,573,883 to Bartlett, in view of "Two Dimensional Position Detection System with MEMS Accelerometer for Mouse Applications," by Lee, et al.***

1. Claims 1, 2, 8, 12, and 54-56

Claim 1 recites, in part, "a microcontroller … configured to generate first control signals correlated to said positions, only while detected movements of said body are less than a speed of movement threshold …" (emphasis added). Bartlett fails to teach or suggest this limitation. In rejecting claim 1, the Examiner points to Bartlett's position commands as corresponding to the first control signals, stating that Bartlett's device produces the position commands correlated to the positions "only while detected movements of the body are less than a speed of movement threshold," and supports the position by arguing that

> no *gesture command* is detected [while detected movements of the body are less than a speed of movement threshold]; note that the *gesture command* as shown in Figs. 2a-2d correspond to a speed threshold, *e.g.*, in Fig. 2a, the quick movement of the handheld has to be greater than the angular orientation about an axis of rotation during the time interval between t_f-t_s, an activation signal is detected, otherwise, the activation signal is not detected, thus, the angular orientation about an axis of rotation during the time interval reads on a speed of movement threshold or speed threshold as claimed …."

Office Action, page 2, last paragraph, to page 3, lines 1-2, (emphasis added).

Among arguments previously submitted, Appellants noted that the Examiner's argument relied on Bartlett's teachings related to gesture commands, while pointing to its position commands as corresponding to the first control signals of claim 1, and that the discussion of the gesture commands had little relevance to the criteria for detecting position commands. Appellants also argued that Bartlett does not teach a speed threshold, even for the gesture commands.

The Examiner responded, arguing that

> *Bartlett's device generates the position command signal only when no gesture command is detected* and when the tilt amplitude of movement is greater than $\theta1$ …. Bartlett teaches if any of gesture commands are detected … the device of Bartlett would generate an activation signal to activate a gesture commands [*sic*], otherwise, no gesture command is generated, therefore, Bartlett does consider speed of movement….

Id., page 13, lines 1-2, emphasis added.

Appellants understand the Examiner's reasoning, as set forth in the rejection and the response to Appellants' argument, to be that (1) Bartlett's position commands are generated only when no gesture command is detected; (2) Bartlett's gesture commands are detected only when movement exceeds a speed threshold; and therefore, (3) Bartlett's position commands are generated only when movement is less than the speed threshold. Appellants strongly disagree, and believe that all three points are incorrect.

First, contrary to the Examiner's statement, Bartlett specifically teaches that position commands are generated even when gesture commands are detected. Bartlett states that

> [c]omplete submission of the gesture command, however, requires a finite interval of time Δt equal to t_f minus t_s. Therefore, the existence and identity of the command cannot be determined until an interval of time of length Δt after submission of the command begins. Confusion in command processing can occur during the interval of time. For example, *the various elements of a gesture command can be interpreted to be a series of position commands and acted upon as such* prior to completion of the gesture command.

Bartlett, 6:49-58 (emphasis added), and see also the discussion of the Bartlett, above, with respect to Figure 5.

Claim 1 recites generation of the first control signal "only while detected movements … are less than a speed of movement threshold." As noted previously, reversing the effects of an executed command is not the same as not having executed the command in the first place.

Second, Bartlett does not teach a speed of movement threshold below which it will *not* detect a gesture command. Only four examples are provided (*id.*, Figures 2a-2d). They are not depicted with a scale to show how long the period Δt is, nor whether it is slow or fast. Furthermore, they are shown with random lengths on the pages, even though it is inherent that the interval must always be the same so that the device can determine what motions should be considered when comparing with the catalog. Bartlett states that "the particular gesture command that was submitted is determined in step 121 [of Figure 3]. This determination is accomplished by comparison of the gesture that was submitted *during the interval of time* with a catalog of gesture commands" (*id.*, 4:54-58, emphasis added). Bartlett teaches that "a series of position commands can be submitted along with a series of gesture commands" (*id.*, 5:1-2). It is quite clear that Bartlett's device can't differentiate between position and gesture commands until it searches the catalog (*id.*, 6:54-58), so it has no way of determining when a gesture command begins except by continually looking back at all the position commands submitted within a specific intearval of time. It can be seen then that the interval of time must be a known value before the catalog is searched. Otherwise, it would be impossible to determine which of the recently executed motions should be grouped for the search. Thus, the interval is always the same length, regardless of the gesture command being executed. It is also therefore inherent that *all* of the movements of any given gesture in the catalog must be executable within the fixed time interval. Accordingly, a gesture command that includes more movements, like that of Bartlett's Figure 2b, for example, may require movements that are faster than one with fewer movements, like that of Bartlett's Figure 2a, in order to be executable within the same interval of time. Even if all of Bartlett's illustrated examples required a same speed of movement to execute, this would not be the same as requiring that, in practice, all gesture commands must exceed some arbitrary speed threshold. Bartlett does not teach or suggest that some gesture commands in the catalog could not include relatively slow movements. Clearly, Bartlett would detect gesture commands of any speed, provided they conformed to commands that were stored in the catalog.

Finally, There is no teaching that Bartlett's position commands must be slower than its gesture commands, and are therefore limited by a speed of movement threshold, even if, *arguendo*, Appellants were to concede the first two points. Reproduced below as Figure 6 is Bartlett's Figure 2a again. The horizontal axis indicates time and the vertical axis indicates angular orientation of the device. Thus, a line on the graph represents a rate of change of angle of the device, or speed of movement, as indicated by the slope of the line. A dotted line T has been added in Figure 6 to show the approximate rising slope of the line on the graph, thus indicating Bartlett's threshold for the gesture command in the example given, and a shaded area is provided to encompass the range of movement that equals or exceeds the threshold.

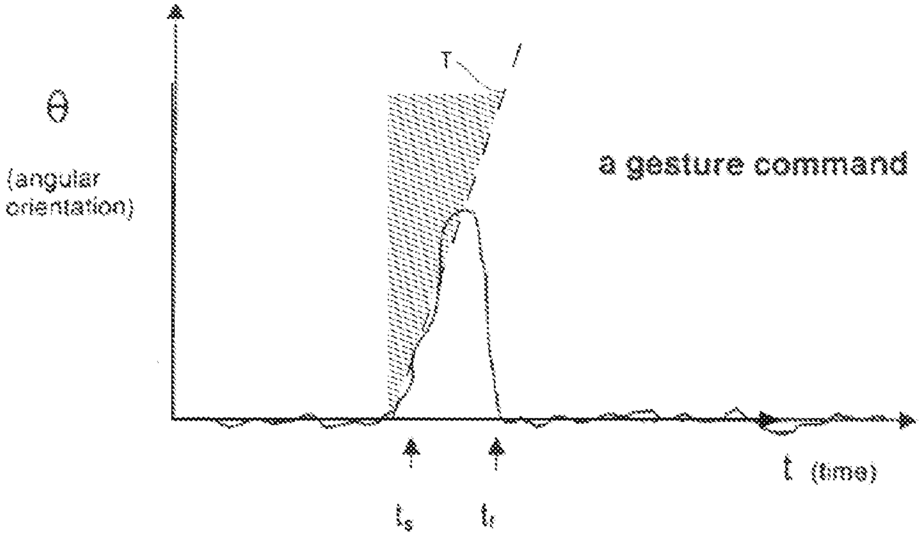

Figure 6
(From Bartlett's Figure 2a)

The microcontroller of claim 1 generates the first control signals *only* while detected movements are less than a speed of movement threshold. Therefore, to conform to the limitations of claim 1, *no movement* whose plotted line enters the shaded area can result in the generation of a first control signal. Thus, if Bartlett's system produces *any* position commands in response to a movement whose line would enter the shaded area, then it fails to teach or suggest the quoted limitation of claim 1.

Figures 7-9 each show a graph on which the threshold line T is provided, as well as a line B corresponding to Bartlett's gesture command described with reference to its Figure 2a.

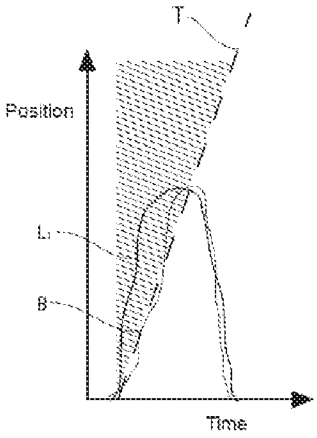

Figure 7

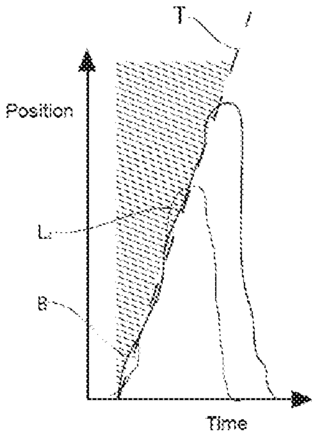

Figure 8

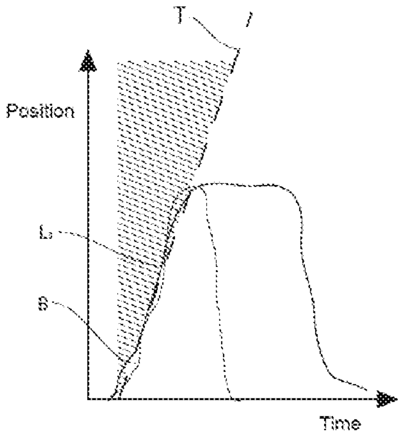

Figure 9

Referring to Figure 7, a line L_1 is provided, depicting a movement that is faster than the threshold T, as demonstrated by its steeper slope. Assuming that the difference in the slopes of lines L_1 and T exceeds the allowance made for minor variations (*see, id.*, 4:60-63), the movement of line L_1 would not be recognized as a gesture command by Bartlett's system, and would therefore result in corresponding position commands (*id.*, 7:8-9), even though the movement clearly exceeds the threshold.

Figure 8 shows a line L_2 that rises at approximately the same rate as line T, but rises much further than the gesture command indicated by line B. Again assuming that the difference in height is greater than the minor variation allowance, Bartlett would again fail to recognize the movement as a gesture command and would therefore produce position commands in response.

Finally, with reference to Figure 9, line L_3 rises at approximately the same rate as line T, but remains at the new position longer than line B, and would therefore once again fail to be recognized as a gesture command, resulting in the execution of corresponding position commands.

In each of the three examples provided above, movements are shown that meet or exceed the Examiner's speed of movement threshold and yet, according to Bartlett's disclosure, would still result in its device producing a position command. Thus, Bartlett clearly does not teach producing such a command only while detected movements are less than a speed of movement threshold, but also produces such commands while detected movements exceed the threshold.

In summary: (1) Bartlett executes a position command in response to every movement of its device, regardless of the speed of the movement; it is only when a series of movements are determined to have been intended as a gesture command, that the position commands that were erroneously executed are reversed, in order to return to the condition at the moment the gesture command was begun; (2) while each of Bartlett's gesture commands in its catalog will inherently include a number of thresholds related to speed, amplitude, and timing of movements, these thresholds are specific to the respective gesture commands, and have no bearing on other gesture commands or on position commands that are not components thereof; and (3) a movement of Bartlett's device, which is not an element of a gesture command, is not limited by any threshold associated with the gesture commands, and will therefore be executed as a position command, regardless of the speed of movement.

Each of the reasons outlined above independently demonstrates that Bartlett cannot teach or suggest a microcontroller … configured to generate first control signals correlated to said positions, only while detected movements of said body are less than a speed of movement threshold ….” Accordingly, claim 1 is allowable over Bartlett.

Claims 2, 8, 12, and 54-56 each depend, directly or indirectly, from claim 1, and is therefore allowable as depending from an allowable base claim.

2. Claim 13

Claim 13, which depends from claim 1, recites that “said microcontroller comprises means for generating second control signals upon detecting movements of said device that are greater than said speed of movement threshold.” The Examiner points to Bartlett’s gesture commands as corresponding to the second control signals of claim 13. Appellants respectfully disagree. As discussed in more detail above, Bartlett does not impose a speed threshold on its gesture commands, but even more importantly, Bartlett does not teach generating gesture commands upon detecting movements that are greater than a speed of movement threshold, but instead detects gesture commands upon finding a gesture command in its catalog whose component motions match the motions performed by the user, including speed, amplitude, and timing of component movements. With regard to speed of movement, it would not be sufficient to merely exceed a speed of movement threshold, but would instead require that each component movement substantially match a respective specific speed. Presumably, Bartlett’s catalog could be programmed to include a gesture command that included a component whose movement was so gradual and slow as to be barely detectable by the device within the time interval allowed. Bartlett clearly fails to teach or suggest the limitation of claim 13, which is allowable over Bartlett, together with dependent claim 14.

3. Claims 16-18, 20, 22, 57, and 58

Claim 16 recites, in part, “sending function activation signals to an electrical appliance corresponding to an axis of movement of the device when the derived rate of change exceeds the speed threshold; [and] sending pointer control signals to the electrical appliance corresponding to the axis and amplitude of position of the device only when … the rate of change does not exceed the speed threshold." (Emphasis added.) Claim 16 is allowable for many of the same reasons that were submitted in support of the allowability of claims 1 and 13 over Bartlett. In particular, Bartlett fails to teach or suggest sending function activation signals when the derived rate of change exceeds the speed threshold, teaching instead sending gesture command signals whenever a series of motions executed within an interval of time matches a gesture command stored in a catalog. Bartlett also fails to teach or suggest sending pointer control signals only when the rate of change does not exceed the speed threshold, teaching, instead, sending a position command signal anytime a movement of sufficient amplitude is executed, regardless of the speed of the movement, and, only if a gesture command is later detected, reversing the effect of the position command.

Claims 17, 18, 20, 22, 57, and 58 each depend, directly or indirectly, from claim 16, and is therefore allowable as depending from an allowable base claim.

4. Claims 30, 31, 33, and 34

Claim 30 recites, in part, "producing control signals corresponding to the movement signals, and suitable for moving a pointer on a computer screen, provided the movement of the body does not exceed a speed threshold." (Emphasis added.) Bartlett does not teach this limitation. Bartlett teaches generating position commands without regard to a speed threshold. Even if there were some minimum speed at which Bartlett's gesture commands were required to be executed (which there is not), this would not be a threshold for its position commands, otherwise there would be no need to correct for "false position commands" (*id.*, 7:10-15), because there would be no question about whether a particular movement was part of a gesture command or a position command. Bartlett cannot teach or suggest this limitation of claim 30, which is therefore allowable.

Claims 31, 33, and 34 each depend, directly or indirectly, from claim 30, and is therefore allowable as depending from an allowable base claim.

5. Claim 32

Claim 32, which depends from claim 30, recites "producing function activation signals corresponding to movement of the body that exceeds the speed threshold." As previously demonstrated, Bartlett generates gesture commands that match gesture commands stored in its catalog. Bartlett is entirely silent with regard to a particular minimum speed, and it is clear from its examples, *e.g.*, Figures 2a and 2b, that it does not intend that all movements be of a same speed, or faster than some threshold. Accordingly, claim 32 is allowable over Bartlett.

6. Claims 36 and 37

Claim 36 recites, in part, "a microprocessor … configured to compare a rate of movement of the pointing device to a threshold and, only if the rate of movement of the pointing device does not exceed the threshold, convert the position signals … to control signals suitable for controlling position of a pointer on the computer screen." (Emphasis added.) Bartlett fails to teach or suggest this limitation. As discussed in more detail above, Bartlett's device does not distinguish between its position commands and gesture commands – cited here by the Examiner as corresponding, respectively, to the pointer control signals of claim 36 and the function activation signals of claim 38 – on the basis of a rate of movement threshold, but on whether a given movement is one of a series of movements that together conform to a preprogrammed gesture command pattern. Even in those cases where a gesture command is detected, movements that produce the gesture command are first processed to produce a control signal suitable for controlling position of an element on the device's screen, without regard for any thresholds (see, e.g., *Bartlett*, 7:6-19). Claim 36 is therefore allowable over the art of record, together with dependent claim 37.

7. Claims 38, 39, and 41

Claim 38 recites that the microprocessor of claim 36 "is configured to produce a function activation signal when the rate of movement of the pointing device exceeds the threshold." As demonstrated, Bartlett does not produce its gesture command in response to exceeding a rate of movement threshold, but in response to a detected match of speed and duration. There is no teaching or suggestion that movement of Bartlett's device, at any rate of movement, however fast, will *per se* produce a gesture command, unless that movement conforms to one of a number of preprogrammed patternsBartlett clearly fails to teach or suggest the limitations of claim 38, which is thus allowable. Dependent claims 39 and 41 are allowable as depending from an allowable base claim.

8. Claims 63-65

Claim 63 recites, in part, " a circuit configured to … [produce a pointer control signal] only if the rate of change does not exceed the rate of change threshold …." (Emphasis added.) As demonstrated in detail above, Bartlett's position commands – cited as corresponding to the pointer control signal of claim 63, are not limited by any rate of change threshold. Bartlett offers no teaching or suggestion that a position command could not be executed at any rate of which the operator was capable. Bartlett clearly fails to teach or suggest this limitation of claim 63, which is therefore allowable over the art of record, together with dependent claims 64 and 65.

C. Rejection of claims 42-45, 48, and 50-52 under 35 U.S.C. §103(a) over U.S. Patent No. 6,573,883 to Bartlett, in view of U.S. Patent No. 6,765,553 to Odamura.

1. Claims 42-45, 48, and 50-52

Claim 42 recites, in part, "a circuit configured to produce a cursor movement command in a first direction, corresponding to a value of the first signal, only when the first signal indicates rotation of the body that is lower than a speed threshold, and to produce a first function command when the first signal indicates rotation of the body that exceeds the speed threshold." (Emphasis added.) Bartlett fails to teach or suggest this limitation of claim 42. The Examiner points to Bartlett's position commands and gesture commands as corresponding, respectively, to the cursor movement commands and function commands of claim 42, and states that

> the quick movement of the handheld [as shown in Bartlett's Figure 2a] has to be greater than the angular orientation about an axis of rotation during the time interval between T_f-T_s, an activation signal is detected, otherwise the activation signal is not detected, thus, the angular orientation about an axis of rotation during the time interval reads on a speed threshold as claimed.

Office Action. page 9, second paragraph.

Appellants disagree for all the reasons set forth in support of the allowability of claims 1 and 13. In view of those comments, Bartlett clearly fails to teach or suggest the quoted limitations of claim 42. The Odamura reference cannot provide the missing teachings. Accordingly the relied-upon combination of references fails to teach or suggest every limitation of claim 42, which is therefore allowable over the art of record. Claims 43-45, 48, and 50-52 depend from claim 42, and are therefore allowable therewith.

D. Dependent claims rejected over additional references and not argued

Claims 3-7, 10, 11, 35, and 53 were each rejected over Bartlett, in combination Lee and one or more of Svancarek (U.S. 6,249,274), Kuga (U.S. 5,701,131), Davison (U.S. 4,682,159), and Odamura. In no case does the Examiner suggest that any of these references, except Bartlett, teaches or suggests the limitations argued above, nor do the Appellants believe that such is the case. These claims are therefore allowable with their respective base claims.

E. Advantages of the claimed inventions over the Bartlett reference

The disclosed and claimed methods and structures of the Appellant's application (hereafter *claimed system*) provide a number of significant advantages over Bartlett's process. First, the likelihood of confusion is greatly reduced. For example, according to the claimed system, the Appellants' process first determines whether a click command has been entered, and only if no click command is detected does it then determine whether a cursor movement command exists. the process therefore does not execute a cursor movement command unless the criteria for a click command are not met. In contrast, Bartlett executes all position commands and then compares the associated movements with its catalog to determine whether they were in fact intended as a gesture command, in which case it reverses the erroneously executed position commands. If a user is attempting to enter a gesture command into Bartlett's device, she may observe the execution of perceived position commands on the screen of the device – as it scrolls away from her intended file, for example, and believe that she has made a mistake. If she then falters during the gesture command, or otherwise fails to properly complete the command, this will break the correct series of movements, resulting in a failure of the device to detect the command, which in turn will prevent the reversal of the previously executed position commands. Thus, before the user can reattempt a failed gesture command, she must first manually reverse each unintended position command. This creates a process that is much more complex and difficult for the user, and fraught with the possibility of error.

Second, Bartlett's device must continually record and hold in its memory every change of state for a period long enough to detect a gesture command (7:22). In contrast, the claimed system, as described with reference to Figure 11 of the specification, requires only that the most recent values of X and Y (XOLD, YOLD), and the most recent cursor positions (OLDX_POS, OLDY_POS) need be held in memory. This means that much more of Bartlett's RAM memory must be dedicated to holding those changes for a period at least as long as the time interval.

Third, the processing requirements for Bartlett's process are significantly greater than those of the claimed system, requiring a comparison of every series of movements with a catalog of gesture commands (4:55-60), each of which may include a number of complex elements. This is in contrast to the process of the claimed system, which merely requires a few simple arithmetic procedures and comparisons with thresholds to determine how to interpret an action.

Fourth, operation of a device according to the claimed system can be must faster than with Bartlett. Assuming that the same actions associated with various of Bartlett's gesture commands are associated with respective ones of the click commands of the claimed system, each click command and each cursor movement command of the claimed system can be executed instantly, while Bartlett's gesture commands each require an extended and fixed time period, even if the actual motion of the gesture command is simple and brief. Accordingly, the user must wait the full length of the time period before proceeding to a next position or gesture command.

Appellants note that the omission of an element and retention of its function is an indicia of unobviousness (In re *Edge*, 359 F.2d 896, 149 USPQ 556 (CCPA 1966)). Appellants believe that the claimed inventions are not analogous to the system and method disclosed in Bartlett. However, if it is considered that the functions of the claimed system are analogous to those of the Bartlett reference, there are a number of elements that have been omitted while retaining that function. These include the catalog as well as the process step of comparing the inputted command with the catalog; the process step of continually recording the changes of state; the process step of waiting to the end of a time interval to determine whether a gesture command has been inputted, etc. It is clear that the differences that distinguish the processes are not insignificant.

F. Conclusion.

In summary, Appellants submit that claims 1, 13, 16, 30, 32, 36, 38, 42, and 63 are patentable over the art of record because the prior art references do not teach or suggest, either individually or in combination, all of the limitations of the respective claims. The Bartlett reference does not teach any speed thresholds or limits on either its gesture commands or its position commands, and therefore cannot meet essential limitations in all of the claims. The remaining references cannot remedy the deficiency of Bartlett. The Examiner has not supported a *prima facie* case of obviousness, because the limitations discussed with reference to the claims listed above are not found in any of the references. Appellants therefore respectfully request a speedy and favorable decision.

Respectfully submitted,
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